

Work Order ID 105431

105431

Page 1

Item ID: D206-667-107BL

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Crosstube Mid Fwd, Blue

Start Date: 8/01/13 Start Qty: 1.00

1

Cust Item ID:

Required Date: 8/15/13 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: *MLJ*

Date: *13-08-01*

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
----------	--------------

D206-667-147	A (DEO)
--------------	---------

DSI9565	A
---------	---

DSI9628	A
---------	---

FIN-D206-667	D
--------------	---

100	0.00
-----	------

100

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-107 chg 003

110

Pick Kit

0.00

110

Packaging

Packaging

Memo

0.00

Packaging

RM *13-08-06*

Work Order ID 105431

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Page 2

Item ID: D206-667-107BL

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Crosstube Mid Fwd. Blue

Start Date: 8/01/13 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 8/15/13 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start ***NR1***
QC: Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

120

0.00

120

BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D206-667-147 using CNC bender program

Handwritten: 13-08-06

130

QC15- Crosstube Dimensional Check

0.00

130

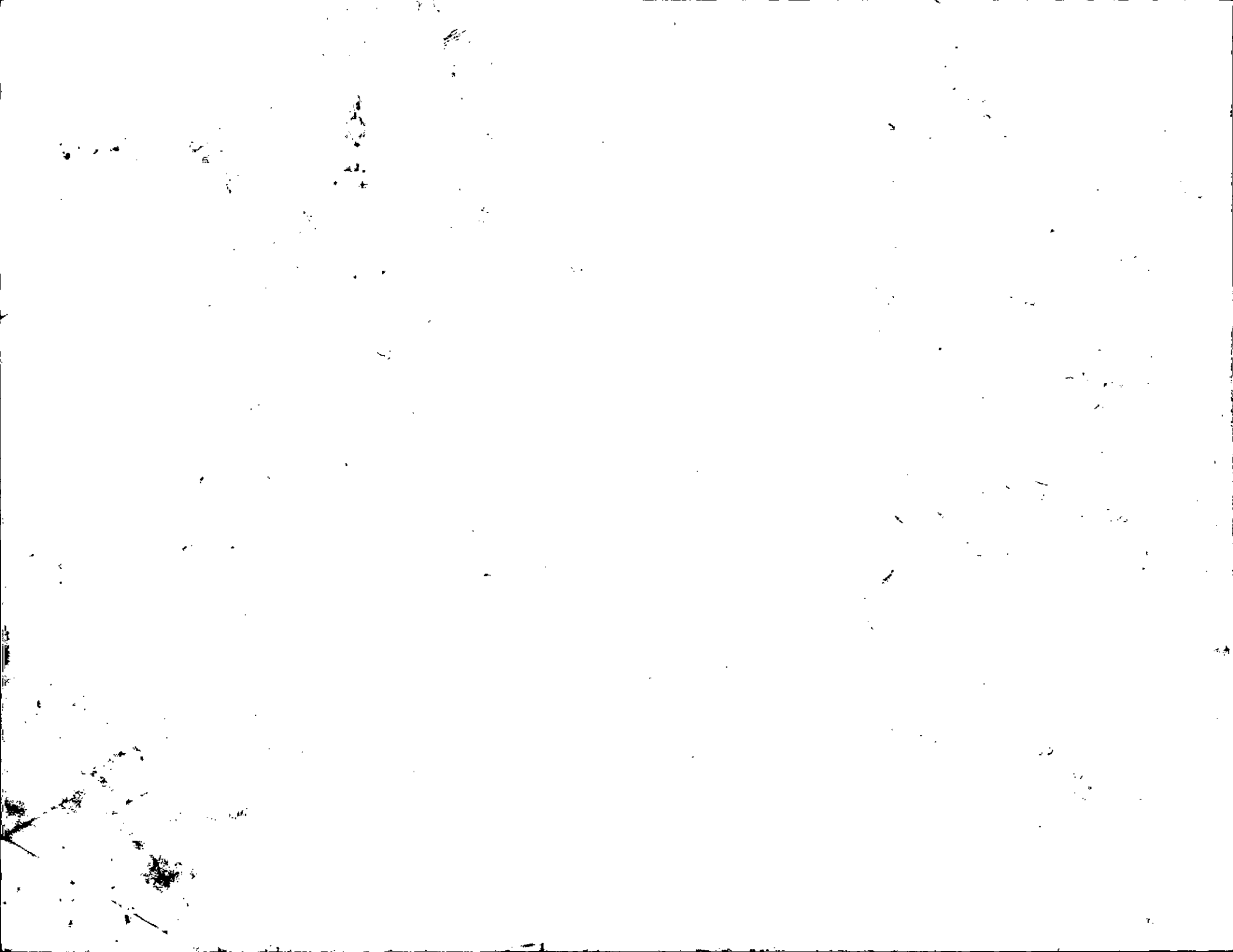
QC

Memo

0.00

Quality Control

Handwritten: DAS 16 9-8 13/07/06



Work Order ID 105431

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August-01-13 3:28:35 PM

Item ID: D206-667-107BL

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Crosstube Mid Fwd. Blue

Start Date: 8/01/13 Start Qty: 1.00

1

Cust Item ID:

Required Date: 8/15/13 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:
QC: Date: SPC (Y/N): Date:

Run Start *NR1*
Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

140

0.00

140

Crosstubes

Crosstubes

Memo

0.00

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: mm *****

1- Drill holes & ream using drill Jig DT8541 & DT8542 as per Dwg D206-667-147. Drill all (3) top holes. Holes facing inboard.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: mm *****

2- Drill Fwd rivet holes using drill Jig DT8787 fwd as per Dwg D206-667-147. Note: Fwd side has 3x top holes. Facing inboard.

3- C'sink holes as per Dwg D206-667-147. Allow rivet to sit below surface to compensate for paint.

4- Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins. Drill ONLY 2 top holes ONLY plug most bottom holes to prevent accidental drilling. Drill holes and ream using drill Jig DT8541 & DT8542 as per Dwg D206-667-147. Drill only the top (2) holes.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: mm *****

5- Drill Aft rivet holes using drill Jig DT8787 aft as per Dwg D206-667-147.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: mm *****

JP 13-08-07

Work Order ID 105431

105431

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* August-01-13 3:28:35 PM

Item ID: D206-667-107BL

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: Crosstube Mid Fwd. Blue

Stop *NS2*

Start Date: 8/01/13 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 8/15/13 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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6- C'sink holes as per Dwg D206-667-147. Allow rivet to sit below surface to compensate for paint.

7- Scribe part # and batch # using vibrating stylus as per Dwg D206-667-147 Inside of Cuff (Do not engrave on outside of tube)

8- *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Debur & Inspect for surface damage. Repair damage within limits as per Dwg D206-667-147

AB 13-08-07

13-08-07

160

QC5- Inspect part completeness to step on W/O 0.00

160

QC

Memo 0.00

Quality Control

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1 DAS 05 13-08-08

170

0.00

170

HandFXtube

Memo 0.00

Hand Finishing Crosstubes

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1- CLEAN CROSSTUBE WITH WASH'N WIPE

1 0 0 AB 13-8-8

Work Order ID 105431

105431

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*August-01-13 3:28:35 PM

Item ID: D206-667-107BL

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Crosstube Mid Fwd. Blue

Start Date: 8/01/13 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 8/15/13 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	Outsource process - NDT per QSI038 4.1	0.00							
180									
Outsource2	Memo	0.00							
Outsource process - NDT	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								
	Liquid Penetrant Inspection as per QSI 038Or Issue P/O: 20858 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order								
190		0.00							
190	Packaging								
Packaging	Memo	0.00							
Packaging	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								
	Ensure copy of NDT results attached to work order.								
200	QC5- Inspect part completeness to step on W/O	0.00							
200									
QC	Memo	0.00							
Quality Control	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								

CA 13/08/08 ①

PC 13/08/08 ②

1 DAS 05 13-08-08

Work Order ID 105431

105431

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Item ID: ID206-667-107BL

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Crosstube Mid Fwd. Blue

Start Date: 8/01/13 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 8/15/13 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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203

0.00

203

HandFXtubc

Memo

0.00

Hand Finishing Crosstubes

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1- PRESSURE WASH CROSSTUBE AND THEN USE WASH'N WIPE TO
CLEAN CROSSTUBE BEFORE CHEMICAL CONVERSION

1 0 0 11
13-8-8

205

0.00

205

QC

Memo

0.00

Quality Control

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1 0 0 11
05 13-8-08

Work Order ID 105431

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Item ID: D206-667-107BL

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: Crosstube Mid Fwd. Blue

Stop *NS2*

Start Date: 8/01/13 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 8/15/13 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

210

210

SprayPaint

SprayPaint

0.00

0.00

Memo

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube as per QSI 005 4.2

PRIME: 126022

Start Time: 11:00

Finish Time: 11:30

PAINT: 126437

Start Time: 1:00

Finish Time: 1:45

Clear: 125447

1 0 0 13-89

220

220

QC

Quality Control

QC14- Inspect Spray Paint

0.00

0.00

Memo

Wrap in plastic bag to protect from scratches

DAS 16 13/08/13

Page 8

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Item ID: D206-667-107BL

Accept

N900040100

Setup Start *NS1*

Revision 1D:

Item Name: Crosstube Mid Fwd. Blue

Stop *NS2*

Start Date: 8/01/13 **Start Qty:** 1.00

*** 1 ***

Cust Item ID:

Required Date: 8/15/13 Req'd Qty: 1.00

*** 1 ***

Customer:

Reference:

Approvals: _____ **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

230

230

Crosstubes

Crosstubes

Crosstubes

Set Up/ Run Hours

0.00

0.00

Memo

1-Abrade mating surfaces of support and crosstube with 400 grit sandpaper.
clean the area with 4105S wash 'n' wipe

2-Install supports with Proseal 890 per DSI9565 and QSI 015

A/R Proseal 890 Batch: 126010

7:30

3- Torque bolts as per dwg

4-Install nut plates as per Dwg D206-667-147. Touch-up rivet heads with Imron paint.

240

240

QC

Quality Control

QC5- Inspect part completeness to step on W/O	0.00
---	------

Memo

0.00

(DAS)
05
2-8-13 13-07-13

Work Order ID 105431

105431

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Item ID: D206-667-107BL

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: Crosstube Mid Fwd. Blue

Stop *NS2*

Start Date: 8/01/13 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 8/15/13 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

250	Pick Kit	0.00							
-----	----------	------	--	--	--	--	--	--	--

250

Packaging Memo

Packaging

260	QC4- 100% Inspect kits for completeness	0.00							
-----	---	------	--	--	--	--	--	--	--

260

QC Memo

Quality Control

270	Packaging	0.00							
-----	-----------	------	--	--	--	--	--	--	--

270

Packaging Memo

Packaging Identify and pack for shipping as per PPP D206-667-107

Location: 114
PPP Rev: _____

IX 4.11.13-08-14

SHN
13-8-15

13/8/16 1 8

Work Order ID 105431

105431

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Item ID: D206-667-107BL

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Crosstube Mid Fwd. Blue

Start Date: 8/01/13 Start Qty: 1.00

1

Cust Item ID:

Required Date: 8/15/13 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:

Run Start *NR1*

QC: Date: SPC (Y/N): Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

280 QC21- Final Inspection - Work Order Release

0.00

280

QC

Memo

0.00

Quality Control

MCJ 13-08-20
MCJ 13-08-20

Picklist Print

August-01-13 3:28:39 PM

Page 1

Work Order ID: 105431

Parent Item: D206-667-107BL

Parent Item Name: Crosstube Mid Fwd. Blue

105431

*D206-667-107BI *

Start Date: 8/01/13

Required Date: 8/15/13

Start Qty: 1.00

Required Qty: 1.00

Comments: revA 11.01.13 New Issue EC verified by:DD
11.08.08 PER ECN 11-615 DD VERF:EC
DSI9628 revA (ECN12-631) DD VERF:JLM

IPP REV:B
IPP REV:C 12.08.20

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D206-667-147TRN

Manufactured

No

110

Each

5.0000

1

1

D206-667-147TRN

Crosstube Assembly, Mid Fwd

**

Location

Loc Qty

Loc Code

LG

5

103545

1

103546

1

103790

1

97411

1

98189

1

D2873-043

Manufactured

No

230

Each

44.0000

2

2

D2873-043

NUT PLATE ASSEMBLY

**

Location

Loc Qty

Loc Code

LG052

44

100314

2

100708

39

72644

2

84386

1

D2873-045

Manufactured

No

230

Each

45.0000

2

2

D2873-045

NUT PLATE ASSEMBLY

**

Location

Loc Qty

Loc Code

LG052

45

100418

4

100707

41

Rm 13-08-06

AL 13-8-9

AL 13-8-9

Packet Print

August-01-13 3:28:39 PM

Page 2

Work Order ID: 105431

Parent Item: D206-667-107BI

Parent Item Name: Crosstube Mid Fwd. Blue

105431

*D206-667-107BI *

Start Date: 8/01/13

Required Date: 8/15/13

Start Qty: 1.00

Required Qty: 1.00

D2891-1

Manufactured No

230

Each

54.0000

2

2

**

AP 13-8-10

D2891-1

Support 2.25

Location

Loc Qty

Loc Code

FG

2

84164

2

LG

12

97495

12

LG051

12

103446

12

LG052

28

102782

10

72822

1

75176

1

89976

1

97044

2

98729

13

(2)

Ticklist Print

August-01-13 3:28:39 PM

Page 3

Work Order ID: 105431

Parent Item: D206-667-107BI

Parent Item Name: Crosstube Mid Fwd. Blue

105431

*D206-667-107BI *

Start Date: 8/01/13

Required Date: 8/15/13

Start Qty: 1.00

Required Qty: 1.00

D3595-063-395

Manufactured No

230

Each

131.0000

4

4

D3595-063-395

Rubber Cushion

**

AB 13-8-10

Location	Loc Qty	Loc Code
FG	5	
87353	5	
LG051	19	
87353	17	
94602	1	
95060	1	
MAT052	22	
102890	22	(3)
ST413	30	
97526	30	
ST414	55	
100373	20	
102441	31	
98361	4	

(1)

(3)

cut (4)0.063" X 3.95"

MS20601-AD4W8

Purchased

No

230

Each

325.0000

14

14

MS20601-AD4W8

RIVET

**

AB 13-8-9

Location	Loc Qty	Loc Code
ST311	225	
124102	70	
124395	155	
ST318	100	
M126084	100	(17) -> 3 scrap

(17)

Printout Print

August-01-13 3:28:39 PM

Page 4

Work Order ID: 105431

Parent Item: D206-667-107BL

Parent Item Name: Crosstube Mid Fwd. Blue

105431

*D206-667-107RI *

Start Date: 8/01/13

Required Date: 8/15/13

Start Qty: 1.00

Required Qty: 1.00

MS21920-20

Purchased

No

230

Each

169.0000

4

4

MS21920-20

Clamp

**

As 13-8-10

Location

Loc Qty

Loc Code

FG

4

122254

4

LG

75

125162

75

LG050

90

116799

8

120676

2

121067

2

121274

2

122254

1

m126266

75

AN5-30A

Purchased

No

250

Each

191.0000



4

AN5-30A

BOLT

SW

**

M.D. 13-08-14

Location

Loc Qty

Loc Code

ST337

92

M126105

92

ST350A

99

124805

99

AN5-32A

Purchased

No

250

Each

455.0000



4

AN5-32A

Bolt

SW

**

M.D.

Location

Loc Qty

Loc Code

ST337

338

124215

338

ST350A

117

124805

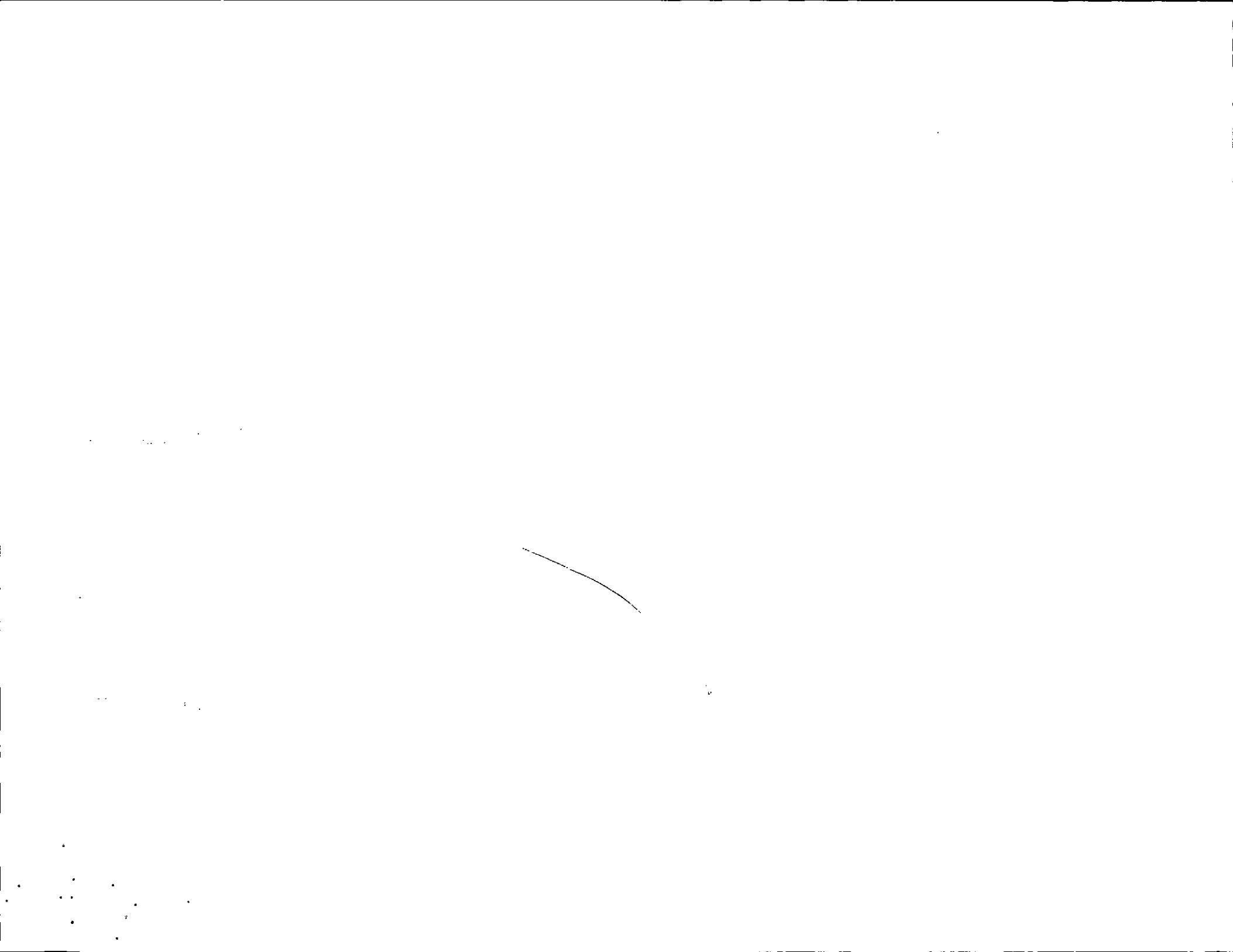
117

4x

August-01-13 3:28:39 PM

Shop Packet Print

Page 4



Packet Print

August-01-13 3:28:39 PM

Page 5

Work Order ID: 105431

Parent Item: D206-667-107BL

Parent Item Name: Crosstube Mid Fwd. Blue

105431

*D206-667-107BL *

Start Date: 8/01/13

Required Date: 8/15/13

Start Qty: 1.00

Required Qty: 1.00

AN5-7A

Purchased

No

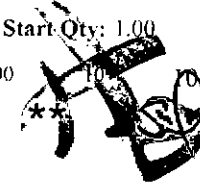
250

Each

4.761.000

AN5-7A

Bolt



13-08-14

Location

Loc Qty

Loc Code

ST361

4561

124215

7

124561

4

M119017

2300

M123355

1880

M123532

120

m125750

50

m126010

200

ST516

200

m126105

200

AN960JD516

NAS1149D0563J

Purchased

No

250

Each

2.0000

AN960JD516

Washer



13-08-14

Location

Loc Qty

Loc Code

ST504

2

1069059

2

125807

Picklist Print

August-01-13 3:28:40 PM

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Work Order ID: 105431

Parent Item: D206-667-107BI.

Parent Item Name: Crosstube Mid Fwd. Blue

105431

*D206-667-107BI *

Start Date: 8/01/13

Required Date: 8/15/13

Start Qty: 1.00

Required Qty: 1.00

AN970-4
AN970-4
Washer

Purchased

No

250

Each

568.0000

12

12

**

M. H. 13-08-14

Location

Loc Qty

Loc Code

ST343

213

112933

2

120644

7

124101

4

m125750

200

st510

105

125098

105

ST351

250

m126180

250

124

D206-667-017

Manufactured

No

250

Each

9.0000

1

1

**

AP 13-8-10

D206-667-017

GROUND STRAP INSTALLATION

100317

Location

Loc Qty

Loc Code

FG

2

102581

2

97504

2

FG033

3

93205

3

LG014

1

97504

1

LG50

1

94062

1

①

Packet Print

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Work Order ID: 105431

105431

Parent Item: D206-667-107BL

D206-667-107BL

Parent Item Name: Crosstube Mid Fwd. Blue

Start Date: 8/01/13

Required Date: 8/15/13

Start Qty: 1.00

Required Qty: 1.00

MS21042L5

Purchased

No

250

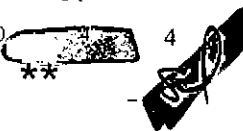
Each

1,499,000

4

MS21042L5

Nut



7.12.13-08-14

52m

Location

Loc Qty

Loc Code

ST314

518

125654

518

ST506

1

123900

1

st507

980

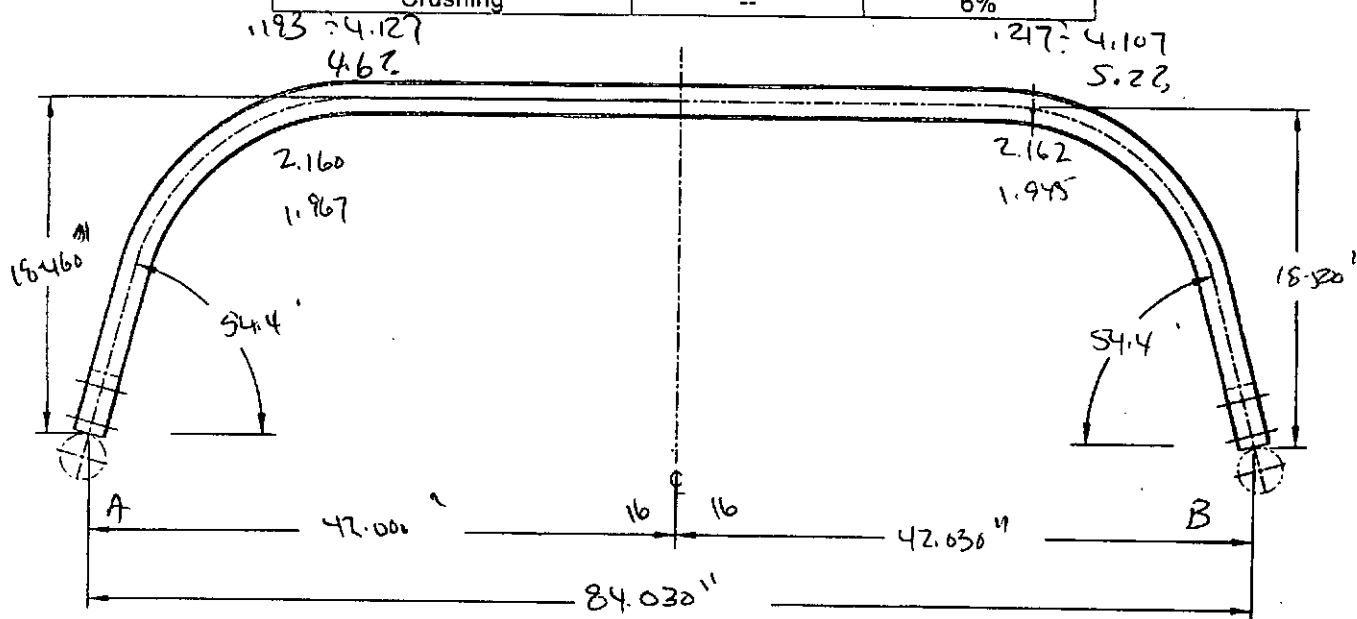
125535

980

4x

DART AEROSPACE LTD		Work Order:	105431
Description: Crosstube Mid Fwd (206L)		Part Number:	D206-667-107
Inspection Dwg: D206-667-147 Rev: A		Page 1 of 1	

Required Dimension	Min	Max
Height	18.34	18.60
1/2 Span	41.79	42.05
Angle	54°	56°
Total Span	83.59	84.09
Bending Passes	10	--
Crushing	--	6%



	Side A	Side B
Bending Passes	16	16
Crushing	4.6%	5.2%
Comments		
Side A =	4.6% crushing @ 16 passes	
Side B =	5.2% crush @ 16 passes	

QC15 Inspection	DAS
Date	16/13/07/06

Rev	Date	Change	Revised by	Approved
A	12.02.15	New Issue	KJ	
B	12.04.16	Added bending, crushing dimensions	KJ	

Item	Qty -147	Part Number	Description
1	X	D206-667-147	CROSSTUBE ASSEMBLY (206L MID FWD)
2	1	D6002-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6002-115
FINISHED LENGTH = 99.84±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-147" AND BATCH NUMBER ON
INSIDE OF CUFF PER DART QSI 044 0.4 (VIBRATING STYLUS).
- 7) WEIGHT: 15.0 lbs (-507 = 12.84)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY.
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI
015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE
THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS
ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

105431 MLS
13-08-01

DEO ATTACHED

EW H1-65
11.07.28

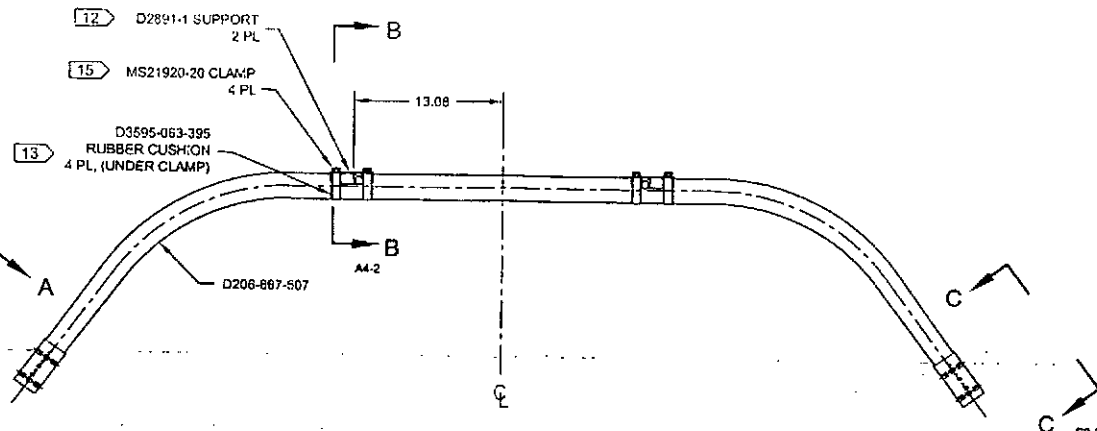
UNDER REVIEW

RELEASED
2011-05-23
JMT

A	NEW ISSUE	CP	10.11.23
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	10.12.23		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D206-667-147	REV. A SHEET 1 OF 4
TITLE CROSSTUBE ASS'Y (206L MID FWD)	SCALE NTS
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105431

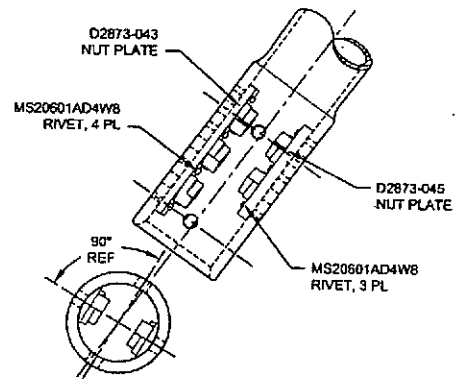


D206-667-147
ASSEMBLY DETAIL
(VIEW LOOKING FWD)

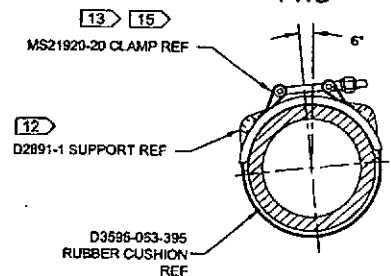
ECW #1.615
11.07.26
UNDER REVIEW
11/11/26

RELEASED
2011-05-24

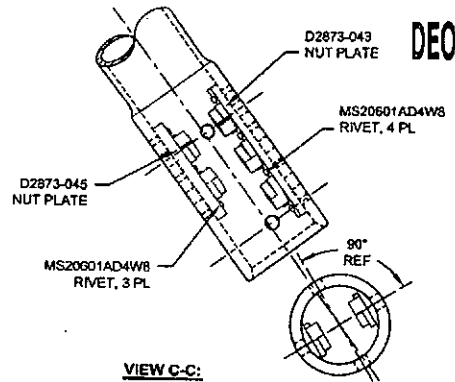
DEO ATTACHED



VIEW A-A:
CUFF DETAIL
SCALE 4X



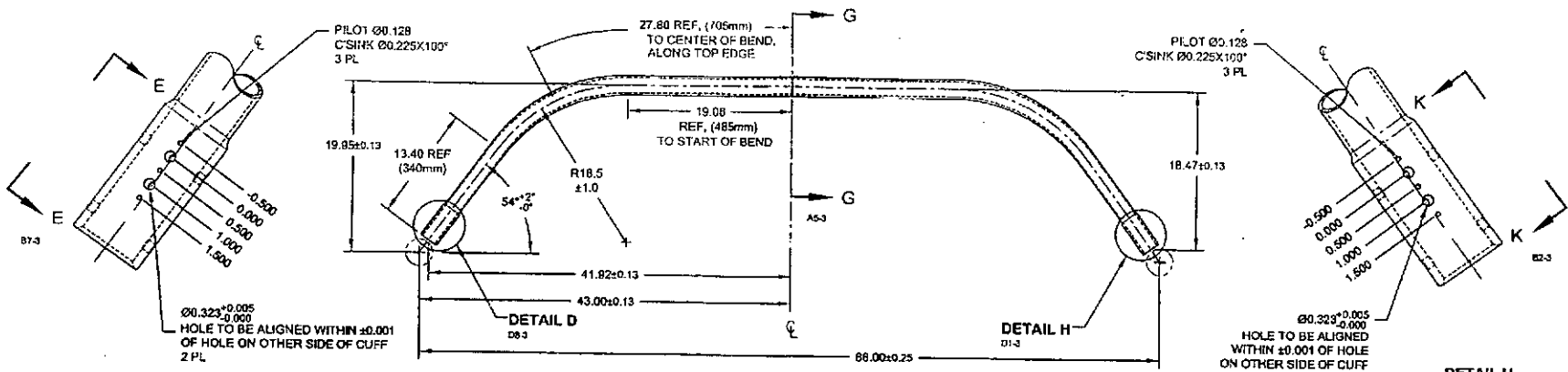
SECTION B-B
SCALE 5X



VIEW C-C:
CUFF DETAIL
SCALE 4X

DESIGN	97	DART AEROSPACE LTD	
DRAWN	97	HAWKESBURY, ONTARIO, CANADA	
CHECKED	5	DRAWING NO.	REV. A
MFG. APPR.		D206-667-147	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASS'Y (208L MID FWD)	NTS
DATE	10.12.23	<small>COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATION TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

105431



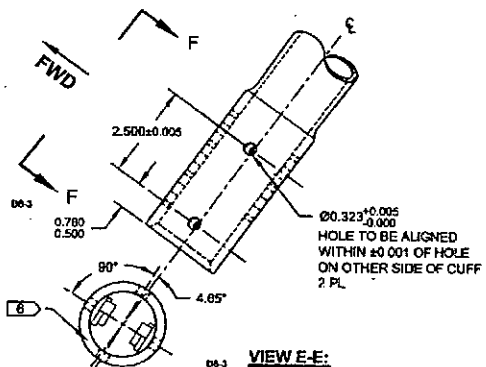
06-3 **DETAIL D**
SCALE 4X
(VIEW LOOKING FWD)

10-3 **D206-667-507**
BENDING AND DRILLING DETAIL
(VIEW LOOKING FWD)

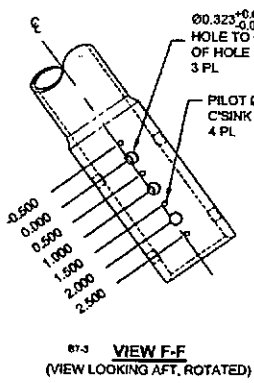
03-3 **DETAIL H**
SCALE 4X
(VIEW LOOKING FWD)

UNDER REVIEW
11.07.28

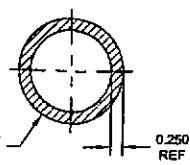
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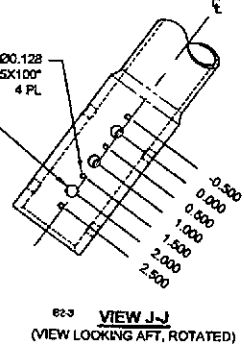
06-3 **VIEW E-E:**
CUFF DETAIL
SCALE 4X



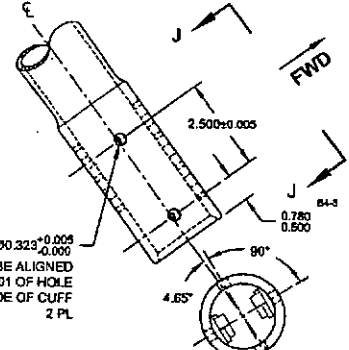
07-3 **VIEW F-F**
(VIEW LOOKING AFT, ROTATED)



04-3 **SECTION G-G**
SCALE 5X



08-3 **VIEW J-J**
(VIEW LOOKING AFT, ROTATED)



01-3 **VIEW K-K:**
CUFF DETAIL
SCALE 4X

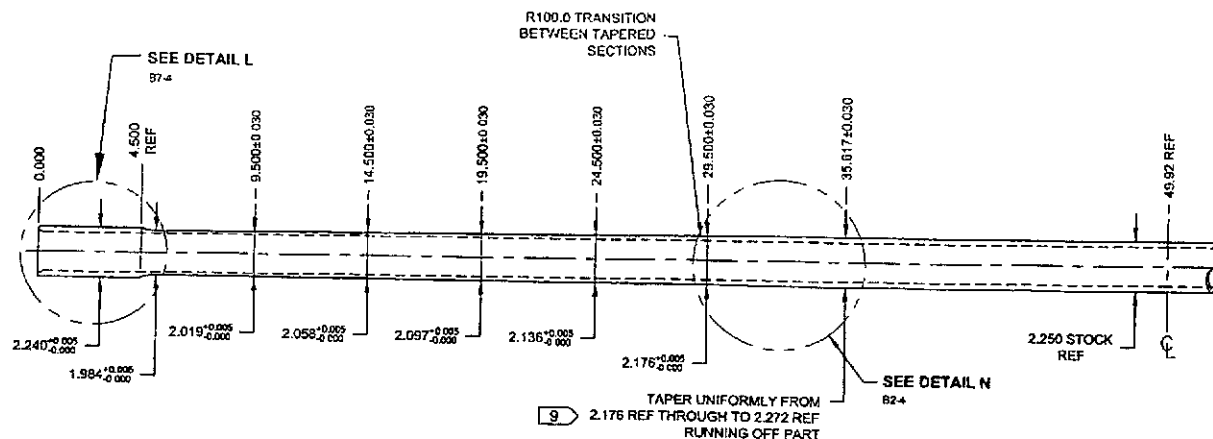
DESIGN	97	DART AEROSPACE LTD	
DRAWN	97	HAWKESBURY, ONTARIO, CANADA	
CHECKED	97	DRAWING NO.	REV. A
MFG. APPR.	97	D206-667-147	SHEET 3 OF 4
APPROVED	97	TITLE	SCALE
DE APPR.	97	CROSSTUBE ASSY (206L MID FWD)	NTS
DATE	10.12.23	COPYRIGHT © 2016 BY DART AEROSPACE LTD	

RELEASED
2011-05-24

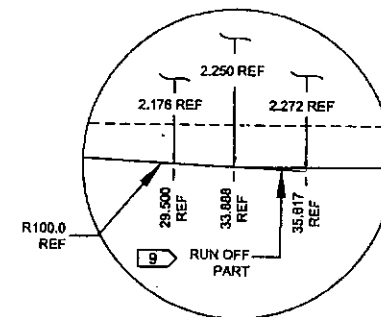
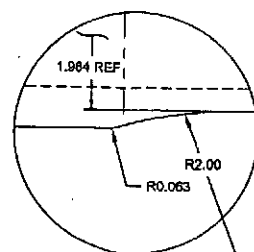
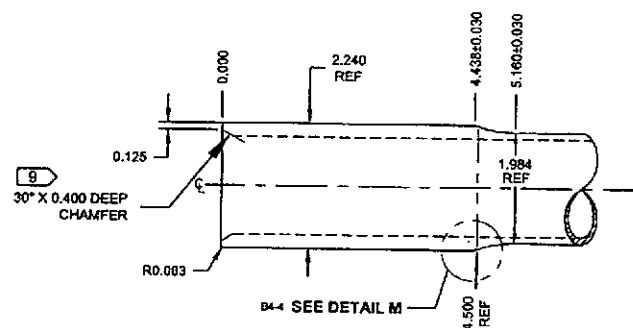
105931

UNDER REVIEW

4/11/87
BOS # 11-615
11.07.28



TURNING DETAIL



DEO ATTACHED

RELEASED
R 2011-05-10

DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		D206-667-147	SHEET 4 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASSY (206L MID FWD)	NTS
DATE	10.12.23	COPYRIGHT © 2010 BY DART AEROSPACE LTD	

105431

DRAWING NO. D206-667-147	TITLE CROSSTUBE ASS'Y (206L MID FWD)	REV. A	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D206-667-147-A-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN 90	CHECKED ASS	MFG. APPR. JDB	APPROVED JMD		DE APPR. JH		
DATE 11.07.15	DATE 11.07.20	DATE 11.07.21	DATE 11/07/21		DATE 11.07.21		

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

Item	Qty -147	Part Number	Description
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
---	-----	----------------	---

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2891-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN.-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

WAS:

- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN.-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
2011-07-28
JH

105431

D206-667-147		CROSSTUBE ASS'Y (206L MID FWD)		DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D206-667-147-A-2		SHEET NO SHEET 1 OF 1		SCALE NTS	
DRAWN AJS		CHECKED		MFG. APPR.		APPROVED		DE APPR.			
DATE 12.08.02		DATE 12.08.02		DATE 12.08.02		DATE 12.08.02		DATE 12.08.02			

PURPOSE:

ADD ELECTRICAL GROUNDING STRAP

CHANGE:

PARTS LIST:

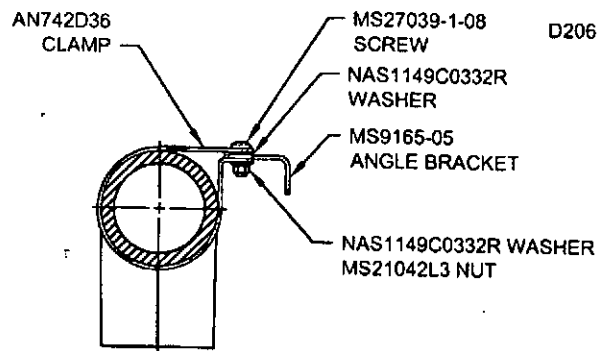
ITEM	QTY -147	PART NUMBER	DESCRIPTION
1	X	D206-667-147	CROSSTUBE ASSEMBLY (206L MID FWD)
10	2	AN742D36	CLAMP
11	2	MS9165-05	ANGLE BRACKET
12	2	MS21042L3	NUT (OR MS21042-3)
13	2	MS27039-1-08	SCREW
14	4	NAS1149C0332R	WASHER (OR AN960C10L)

GENERAL NOTES:

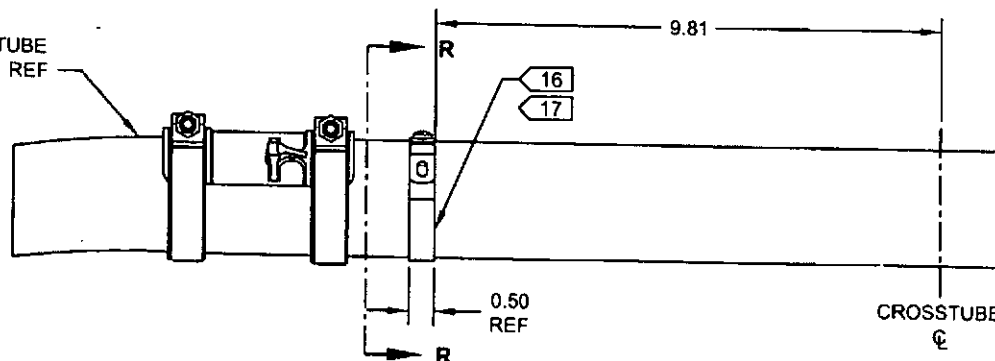
- 16) MASK AREA UNDER CLAMP PRIOR TO PAINTING
- 17) SEAL EDGES WHERE AN742D36 CLAMP MEETS WITH THE CROSSTUBE USING SIKAFLEX-241/-291 OR MIL-S-8802 CLASS B2 OR PROSEAL 890 SEALANT
- 18) PERFORM RESISTANCE CHECK TO ENSURE MAX RESISTANCE IS 10 MILLIOHMS

→ AFT

RELEASED
UP 12.08.17
ECN 12-451



SECTION R-R



DETAIL P
BONDING STRAP INSTALLATION 2 PL

folio

Dart Aerospace Ltd
Landing Gear
CNC Bender 2
D206-667-147

Batch #: 105431

Tangent lines

Center line

15" from CUFF

19" from Center line

2-Set-up

2.25" Rollers WITH 1.6" Spacers

Buggy A - 3.125"

All programs run with long end of tube on SMALL TABLE

3-BENDING:

Step 1: Y 1680 W 3200 prog. 2 + up Y 2465 W 3200

Run program 206147 1-2-3-4-5-6 from 19" line down taper, buggy A on Cuff.
then CHECK

Step 2: Y 3540 W 3340

run program 206147 10-11-11b-11g, from 15" line CHECK

run program 12-13-14a-b-c-d as required to finish, CHECK between each
program

Passes:

1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20

U



LIQUID PENETRANT TEST REPORT

P- 153-0

CLIENT	<u>Int Aero Space</u>	DATE	<u>1-20-08</u>	PAGE	<u>1</u>	OF	<u>1</u>
ATTENTION	<u>INT/ADT</u>	ACUREN JOB NO.	<u>188-13-0015</u>	TIME	AM <input checked="" type="checkbox"/>	PM <input type="checkbox"/>	
ADDRESS	<u>1270 ASALDEN ST</u> <u>Hanksville, UT</u>	POWOW No.	<u>20858</u>	WORK LOCATION	<u>Same as</u>		
PROJECT	<u>F.P.I. on CROSS TUBES</u>	ACCEPTANCE STD.	<u>ASTM 1417/03E</u>	REV./DATE	<u>2005</u>		
ITEM(S) EXAMINED	<u>(P)</u>						

JOB DESCRIPTION	PROCEDURE No. <u>LT-002</u>	REV./DATE	<u>2008</u>	TECHNIQUE No. <u>LT-002</u>	REV./DATE	<u>2008</u>
PART NO.	<u>SEE RESULTS</u>	MATERIAL	<u>ALUMINUM</u>	THICKNESS	<u>VARIABLE</u>	
SCOPE	<u>A WET FLUORESCENT DYE PENETRANT INSPECTION WAS COMPLETED 100% ON THE SURFACE ONLY.</u>					

TEST DETAILS	
METHOD	<input checked="" type="checkbox"/> FLUORESCENT <input type="checkbox"/> VISIBLE
FAMILY BRAND	<u>MAFLEX</u>
PENETRANT	<u>2067</u> MINIMUM DWELL TIME <u>45</u> MIN
PENETRANT REMOVER	<u>H2O</u> MINIMUM DRY TIME <u>>10</u> MIN
DEVELOPER	<u>5452</u> MINIMUM DWELL TIME <u>10</u> MIN
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS <input type="checkbox"/> AQUEOUS <input type="checkbox"/> DRY
<input type="checkbox"/> WATER WASH <input type="checkbox"/> SOLVENT REMOVABLE <input type="checkbox"/> POST EMULSIF	
BLACK LIGHT S/N <u>16459</u> <input type="checkbox"/> OUTPUT > 1000 μ W/cm ² <input type="checkbox"/> AMBIENT	
LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT <input type="checkbox"/> OUTPUT > 100 fc @ SURF	
OTHER <u>LAB. NO</u>	
LIGHT METER S/N _____ CAL DUE DATE _____	

TEST SURFACE	
SURFACE CONDITION	<input type="checkbox"/> AS GROUND <input type="checkbox"/> AS WELDED <input checked="" type="checkbox"/> MACHINED <input type="checkbox"/> SHOT BLASTED <input checked="" type="checkbox"/> CLEAN BARE METAL
SURFACE TEMPERATURE	<input type="checkbox"/> < -4°C/ 20°F <input type="checkbox"/> -4°C/ 20°F TO 10°C/ 50°F <input checked="" type="checkbox"/> 10°C/ 50°F TO 52°C/ 125°F <input type="checkbox"/> > 52°C/ 125°F

RESULTS- <input type="checkbox"/> METRIC <input type="checkbox"/> IMPERIAL																			
<table><tr><td>CROSS TUBE</td><td>W.C.F</td></tr><tr><td>155135</td><td>" "</td></tr><tr><td>104447</td><td>" "</td></tr><tr><td>104446</td><td>" "</td></tr><tr><td>105170</td><td>" "</td></tr><tr><td>103207</td><td>" "</td></tr><tr><td>103260</td><td>" "</td></tr><tr><td>105431</td><td>" "</td></tr><tr><td>102049</td><td>" "</td></tr></table>	CROSS TUBE	W.C.F	155135	" "	104447	" "	104446	" "	105170	" "	103207	" "	103260	" "	105431	" "	102049	" "	<u>13-08-08</u>
CROSS TUBE	W.C.F																		
155135	" "																		
104447	" "																		
104446	" "																		
105170	" "																		
103207	" "																		
103260	" "																		
105431	" "																		
102049	" "																		

Scope of Services
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as a representation or warranty. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a user of data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expression or condition is made or intended by Acuren Group Inc.

SIGNATURES	
CLIENT REPRESENTATIVE	<u>Andy Sheldon</u> PRINT <u>ASh</u> SIGNATURE
TECHNICIAN (SIGNATURE)	<u>Mike Hansen</u> PRINT <u>MH</u> SIGNATURE
NAME (PRINT)	1 ST TECHNICIAN <u>Mike Hansen</u> 2 ND TECHNICIAN _____
CGSB LEVEL	<u>2</u> SNT LEVEL _____
CGSB REG. NO.	<u>6606</u> CGSB REG. NO. _____
DTR #	<u>E20370</u>
REPORT REVIEWED BY:	NAME _____ INITIALS _____

Work Order ID 105431

August-01-13 3:28:35 PM

105431

Page 1

Item ID: D206-667-107BL

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Crosstube Mid Fwd. Blue

Start Date: 8/01/13 Start Qty: 1.00

1

Cust Item ID:

Required Date: 8/15/13 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: MLJ

Date: 13-08-01

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D206-667-147	A (DEO)								
DS19565	A								
DS19628	A								
UN-D206-667	D								

100

0.00

100

DOCUMENT CONTROL

DC

Memo

MLJ

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-107 chg 003

MLJ 13-08-14

110

Pick Kit

0.00

110

Packaging

Packaging

Memo

0.00

Packaging

MLJ 13-08-06

